UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
841 Chestnut Building
Philadelphia, Pennsylvania 19107

SUBJECT: Possible Risks from Contaminants Reported in the East Richmond Road Landfill

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A review of the analytical and sampling data indicates that this facility may have some heavy metal contamination in the aquifer and that soil sediments associated with leachates are contaminated with a broad spectrum of polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs) and, possibly, nitrosodimethylamine. The fact that the nearby community uses a public water supply negates any possible health impacts from the questionable quality of the groundwater. The soil sediment contamination, however, deserves further discussion.

It would have been helpful if additional soil samples were collected and analysed to aid in the characterization of possible impacts to children who may use this facility for recreational activities. The use of soil sediment analyses as a data source for the entire site soil profile is likely to grossly overestimate the hazards at this facility. A reasonably accurate assessment should have access to sufficient data to allow for the calculation of mean concentrations of soil contaminants. This is not possible at this dumpsite. Without additional soil data, however, calculations will assume that the sediment-soil data typifies the entire facility.

The routes of exposure include inhalation, ingestion and dermal absorption of soil contaminants. Assumptions include that the typical weight per child of 30 kilograms, that they use this area for recreation for four hours per day on three days per week for a total of six years. It is also assumed that they inhale and ingest a total of 100 mg of soil during each site visit. It is also assumed that they are exposed to 4 grams of soil by skin contact during each visit. These criteria correspond to typical worst case exposure scenarios for such assessments.

Considering the assumptions previously described, calculations suggest that children utilizing this facility for recreational purposes could be exposed to a cancer risk that slightly exceeds a chance in a million over a lifetime ($1.0 \times 10^{-6}$) which is the EPA criterion in this regard.

The actual incremental risk calculated was about $5.0 \times 10^{-6}$ or 5 additional cancers in a population of one million exposed individuals. This number was tabulated by adding all calculated risks from the contaminants previously mentioned . It must be stressed that calculations were from very fragmentary data and are very probably a considerable overestimation of the acutal risk from recreational activities at this facility. A more accurate risk assessment could be provided only if additional, carefully planned, soil analytical data were provided. In any case, it would probably be prudent to discourage children from using this dumpsite as a recreational area.

It seems very unlikely, however, that sufficient levels of the contaminants mentioned could have contaminated the soils of the adjacent Hilltop North Apartments. Those contaminants reported in the soil sediments collections of the leachate are commonly found in such samples from municipal dumps and should not be construed to constitute an unusual contaminant situation.

If a more concise evaluation of the possible hazards in the adjacent apartment area is needed, then soil sampling in that area must be considered.